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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,125	02/27/2002	Atsuko Ohara	826.1793	3360

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
LEE, TOMMY D	

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/083,125	OHARA ET AL.	
	Examiner	Art Unit	
	Thomas D. Lee	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/27/02 and 5/2/05*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

This claim recites functional descriptive material comprising a computer program that imparts functionality when employed as a computer component. Functional descriptive material must be embodied on a *computer readable medium* to impart its functionality. See MPEP 2106.IV.B1(a).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims recite the limitation "the process" in line 3 of each claim. There is insufficient antecedent basis for this limitation in the claims. Note that "a degradation process" is recited in claim 6, but claims 7 and 8 both depend from claim 1, which does not recite a process.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Document 11-134434 (Kashioka et al.) in view of Japanese Document 3-122785 (Matsuda).

Regarding claim 1, Kashioka et al. disclose a halftone dot elimination method for eliminating half-tone dots from a halftone dot meshed image, comprising: specifying a halftone dot meshed area based on black pixel connection pattern density of a target process area (target area determined to be a halftone dot meshing area when the density of a pattern recognized as a half-tone dot meshing element is higher than a threshold value (read SOLUTIION section of English-language ABSTRACT)).

Kashioka et al. do not disclose eliminating a connection pattern, the size of which is smaller than a specific value, based on statistics on black pixel connection sizes included in the halftone dot meshing area. However, the elimination of connection patterns that are smaller than a specific value is a well-known method of eliminating noise from a character pattern so as to enhance character recognition. Matsuda discloses an optical character reader that determines whether noise is present based on whether the area, width and height (statistical data of black pixel connection sizes) of each separated pattern are all less than respective thresholds. Patterns determined to be noise are deleted (read CONSTITUTION section of English-language ABSTRACT). One of ordinary skill in the art would have recognized that the presence of noise in the form of small, isolated patterns degrades the appearance of a halftone image, and thus would have been motivated to modify the teaching of Kashioka et al. by providing for the

recognition and elimination of such patterns, as disclosed in Matsuda, so as to enhance the quality of the halftone image.

Claim 9 is a system claim corresponding to above-rejected method claim 1. As the method steps of specifying a halftone dot meshed area and eliminating a connection pattern are suggested by the combined teaching of Kashioka et al. and Matsuda, it would have been obvious for one of ordinary skill in the art to combine the two teachings in order to come up with a system comprising a meshed area specifying unit and a connection pattern elimination unit for performing the method steps.

Claim 10 recites a program for enabling a computer to implement the method steps of above-rejected claim 1. While not specifically disclosed in Kashioka et al. or Matsuda, it has been common practice for one skilled in the art to provide a computer-implemented program for performing image-processing steps, in general, on a computer as an alternative to specific hardware required for performing the processing steps, and thus it would have been obvious for one of ordinary skill in the art to provide a providing a computer program for performing the method steps suggested by the combined teaching of Kashioka et al. and Matsuda.

10. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashioka et al. in view of Matsuda as applied to claim 1 above, and further in view of U.S. Patent 6,393,161 (Stevenson et al.).

Kashioka et al. in view of Matsuda do not disclose eliminating connection patterns, wherein the outline length (side length of a circumscribed rectangle), divided by the number of black pixels included in a connection pattern, exceeds a prescribed

threshold value. Stevenson et al. disclose a method for minimizing image defects, wherein if black pixels are continuous for a minimum number of output lines (streak pattern), and if a certain number of pixels around the streak pattern are white, then the black pixels corresponding to the streak pattern are changed to white, i.e., removed (column 4, lines 37-60). If the number of pixels around the streak pattern that are white is high, then accordingly the number of black pixels included in the connection pattern will be low, and thus outline length (length of the streak pattern) / the number of black pixels will be high, indicating that the streak pattern should be removed. By implementing this method, image defects in the form of thin streak patterns on a halftone image can be effectively removed, without affecting the appearance of thick lines that are likely part of the image, thereby further enhancing the quality of the image. Therefore, it would have been obvious for one of ordinary skill in the art to modify the combined teachings of Kashioka et al. and Matsuda, by providing a method by which thin line patterns are removed, such as disclosed in Stevenson et al.

11. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashioka et al. in view of Matsuda as applied to claim 1 above, and further in view of U.S. Patent 5,832,123 (Oyamada).

Kashioka et al. in view of Matsuda do not disclose eliminating projections that are attached to an image except halftone dots included in the halftone dot meshed area, wherein said projection elimination step eliminates a projection, the size of which is smaller than a connection pattern size eliminated in said connection pattern elimination step, and wherein said projection elimination step converts a binary image into a gray

image, a degradation process is applied to the halftone dot meshed area and the image after the degradation process is binarized again. This appears to simply be a process for smoothing edges, which is well known in the art. Oyamada discloses a method of removing jaggies that appear in the outline of an image, so that the image has a smoother outline. Binary image data is converted to grayscale image data, after which a low-pass filter extracts low frequency elements to smooth the outline of the image. Afterwards, the enhanced grayscale image data is converted back to binary data (column 9, line 66 – column 10, line 34). By implementing this method, objectionable projections that may appear in an image outline are effectively removed, thereby enhancing the appearance of the image. Therefore, it would have been obvious for one of ordinary skill in the art to modify the combined teachings of Kashioka et al. and Matsuda, by providing a low-pass filter to smooth image outlines, such as disclosed in Oyamada.

Allowable Subject Matter

12. Claims 7 and 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest a threshold value, determined based on both an average value and standard deviation of a connection pattern size (claim 7), or using a trough of a histogram of connection pattern sizes (claim 8), in the process performed in said connection pattern elimination step.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (571) 272-7436. The examiner can normally be reached on Monday-Friday, 7:30-5:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas D Lee
Primary Examiner
Technology Division 2625

tdl
March 30, 2006